

REMARKS

Claims 1-30 were pending prior to the current amendments. Claims 1-5 are amended to more particularly point out and distinctly claim Applicants' invention. Claims 31-47 are newly presented.

The Examiner rejected Claims 1-6, 14-28 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,535,493 ("Lee") in view of U.S. Patent 6,622,157 ("Heddaya"). The Examiner states:

As per claims 1-6, and 14-28 Lee discloses a method for routing information to a mobile unit in a data communication system having a home network [**first subnet**] and a remote network [**second subnet**], wherein a content stream to a mobile node in a first subnet with a first caching proxy in response to a request [**inherent in the art**]; relocating the mobile node to a second subnet [**the mobile unit may roam from the home network to the remote network**]; initial act of notifying the first caching proxy of the relocation of the mobile node [**registering the mobile unit with the home agent**].

Lee discloses the claimed invention, but fails to specifically teach handling off the request to serve the streaming content from the first caching proxy to a second caching proxy by initiating a cache query to identify the second caching proxy as a function of the location of mobile node in the second subnet; and continuing to serve the request for the content stream to the mobile node with the second caching proxy.

Heddaya teaches handling off the request to serve the streaming content from the first caching proxy to a second proxy by initiating a cache query to identify the second caching proxy as a function of the location of the mobile node in the second subnet; and continuing to serve the request for the content stream to the mobile node with the second caching proxy [**offloading requests that are intended to be serviced by the primary server to a second server (column 3, line 66 through column 4, line 4); the service request is intercepted and handled by the secondary server node (column 4, line 35-341); in response to an initial service request that request a service to be provided by a primary server node, a mobile agent from the primary indicates to the immediate node that the request should be redirected to the secondary node (column 4, lines 15-23); secondary node is preferably closer to the client node**]

in order to have a faster response time and to reduce traffic in the network.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the current invention to use redirecting of the request from one node to another as being taught by Heddaya into Lee's mobile internet communication system in order to have a faster response time and to reduce traffic in the network.

Applicants respectfully traverse the Examiner's rejection. Claim 1 recites a method in which two or more caching proxies together serve a request for a content stream of a mobile node, as the mobile node relocates between two or more subnets:

1 A method of managing cacheable streaming content, the method comprising:

a) serving a content stream to a mobile node in a first subnet with a first caching proxy in response to a request;

b) in response to the mobile node relocating to a second subnet, handing off the request to serve the streaming content from the first caching proxy to a second caching proxy; and

c) continuing to serve the request for the content stream to the mobile node with the second caching proxy.

(emphasis added)

As explained in Applicants' specification, at paragraph 24, "handing off" of a request for a content stream, so that a second caching proxy can continue to serve the request that a first caching proxy has already initiated service, is particularly advantageous:

The cache handoff system directs a cache handoff of streaming content currently being served to a mobile node as the mobile node roams within the network architecture. The cache handoff allows the uninterrupted supply of streaming content from a cache in close proximity to the mobile node. Accordingly, traffic within the network is minimized while

delays, congestion and degradation of the quality of service may be avoided.

(emphasis added)

As the Examiner already recognizes in the Office Action of March 8 2004, Heddaya teaches that a second server fulfils the request alone, in place of the primary server:

... offloading requests that are intended to be serviced by the primary server to a second server (column 3, line 66 through column 4, line 4); the service request is intercepted and handled by the secondary server node (column 4, line 35-341); in response to an initial service request that request a service to be provided by a primary server node, a mobile agent from the primary indicates to the immediate [sic] node that the request should be redirected to the secondary node (column 4, lines 15-23); secondary node is preferably closer to the client node.

Thus, Heddaya neither discloses nor suggests the “handing off” limitations of Applicants’ Claim 1. Accordingly, Applicants respectfully submit that Claim 1 and dependent Claims 2-5 are allowable over the combined teachings of Lee and Heddaya. Similarly, Claims 6, 14 and 22 each also recite “cache handoff” limitations:

6. (Original) A method of managing cacheable streaming content, the method comprising:

a) supplying a content stream with a caching proxy in response to a request of a mobile node located in a first subnet;

b) caching the content stream supplied by the caching proxy;

c) handing off the request to another caching proxy when the mobile node relocates to a second subnet;

d) discontinuing caching of the content stream with the caching proxy; and

e) quantizing the fragment of the content stream cached in the caching proxy to achieve a uniform size.

14. A method of managing cacheable streaming content, the method comprising:

a) subscribing a caching proxy to a mobility status of a mobile node as a function of a request for a content stream by the mobile node and the logical proximity of the caching proxy to the location of the mobile node;

b) notifying the caching proxy that the mobile node has moved to a new location;

c) identifying a target caching proxy in close logical proximity to the new location;

d) initiating a cache handoff of the request for the content stream from the caching proxy to the target caching proxy; and

e) subscribing the target caching proxy to the mobility status of the mobile node.

22. A cache handoff system for managing cacheable streaming content requested by a mobile node within a network architecture comprising a first subnet and a second subnet, the cache handoff system comprising:

a first caching proxy operable in the first subnet to supply a content stream responsive to a request of a mobile node operable in the first subnet; and

a second caching proxy operable in the second subnet, the first caching proxy operable to initiate a cache handoff of the request to the second caching proxy following relocation of the mobile node to the second subnet, the second caching proxy operable to seamlessly continue supply of the requested content stream as a function of the cache handoff.


(emphasis added)

Thus, for the reasons already stated above, Claims 6, 14 and 22 and dependent Claims 15-21 and 23-28 are each allowable over the combined teachings of Lee and Heddaya. Reconsideration and allowance of Claims 1-6 and 14-28 are therefore requested.

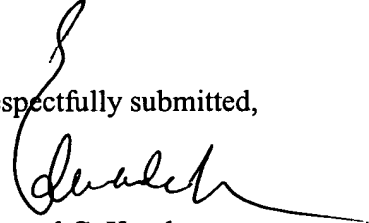
For similar reasons, newly presented Claims 31-47 are believed allowable over the prior art of record.

The Examiner indicated allowable subject matter in Claims 7-13 and 29-30, but for their depending from a rejected base claim. In view of the reasons stated above, Applicants defer rewriting these claims in independent form until the Examiner has reconsidered the above rejection.

Therefore, Applicants believe that all pending claims (i.e., Claims 1-47) are allowable, and respectfully request their allowance. If the Examiner has any questions regarding the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicants at 408-392-9250.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 4, 2004.	
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Attorney for Applicant(s)	Date of Signature

Respectfully submitted,


Edward C. Kwok
Attorney for Applicant(s)
Reg. No. 33,938

Law Offices of
MacPherson Kwok Chen & Heid LLP
1762 Technology Drive, Suite 226
San Jose, CA 95110
(408) 392-9250 x208